

What is claimed is:

## CLAIMS

1. An anticipatory processing system comprising:  
5 a controller generating a prediction of an event determining program material to be displayed; and  
an audio/video (A/V) processor controlled by the controller for preparing a digital stream for use in response to the prediction of the event.
- 10 2. The system according to claim 1 and wherein the A/V processor is also controlled by the controller for preparing A/V information associated with said program material for display in association with said digital stream in response to the prediction of the event.
- 15 3. The system according to claim 1 or claim 2 and wherein the A/V processor prepares the digital stream for use by performing at least one of the following: preparing the digital stream for rendering; preparing the digital stream for storage; and preparing the digital stream for distribution via a communication network.  
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4. The system according to claim 2 and also comprising a display unit displaying the A/V information associated with said program material in association with said digital stream if the event occurs.
- 25 5. The system according to claim 1 and wherein the A/V processor, operating under control of the controller, uses the digital stream at a time after termination of preparation of the digital stream for use if the event occurs.
6. The system according to claim 5 and wherein the time after  
30 termination of preparation of the digital stream for use is immediately after termination of preparation of the digital stream for use.

7. The system according to claim 1 and wherein said event comprises at least one of the following: user input; an indication of a commercial break; an instruction from a headend or a broadcast source; an instruction from a computer program predicting user behavior based on a user profile; an alert associated with a current display; and at least one message from a broadcaster or a service provider.
8. The system according to claim 1 and wherein said program material comprises a commercial.
9. The system according to claim 1 and wherein said program material comprises a segment of a television program.
10. The system according to claim 1 and wherein the digital stream is associated with a channel.
11. The system according to claim 10 and wherein the channel comprises one of the following: a regular channel; and a virtual channel.
12. The system according to claim 2 or claim 4 and wherein the A/V processor prepares the A/V information for display in association with the digital stream by performing at least one of the following: preparing the A/V information for display over a channel associated with the digital stream; preparing the A/V information for display together with the digital stream in a picture-in-picture (PIP) mode; and preparing the A/V information for display together with the digital stream in a side-by-side mode.
13. An anticipatory processing system comprising:  
a controller generating a prediction of an event determining program material to be displayed; and

a tuner controlled by the controller for preparing an analog channel for use in response to the prediction of the event.

14. The system according to claim 13 and wherein the analog channel  
5 comprises an analog television channel.

15. The system according to claim 13 or claim 14 and wherein the tuner is also controlled by the controller for preparing A/V information associated with said program material for display over said analog channel in response to the prediction  
10 of the event.

16. The system according to claim 13 and wherein the tuner uses the analog channel if the event occurs.

15 17. An anticipatory processing system comprising:  
a plurality of A/V processors comprising at least a first A/V processor and a second A/V processor; and  
a controller controlling at least the first A/V processor and the second A/V processor and, upon the first A/V processor rendering or preparing for  
20 rendering a first digital stream, instructing the second A/V processor to prepare a second digital stream for rendering based, at least in part, on predicted input.

18. The system according to claim 17 and wherein the controller generates the predicted input based upon at least one of the following: user input; an  
25 indication of rendering or preparation for rendering of the first digital stream; an indication of a commercial break; an instruction from a headend or a broadcast source; an instruction from a computer program predicting user behavior based on a user profile; an alert associated with a current display; and at least one message indicating current or scheduled occurrence of an event.

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19. The system according to claim 17 or claim 18 and wherein the controller comprises a stream selector for choosing any one of the first digital stream and the second digital stream from at least one of the following: a broadcast multiplex; and a plurality of digital content items stored in a memory.

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20. The system according to claim 17 and wherein the second A/V processor, operating under control of the controller, renders the second digital stream after termination of preparation of the second digital stream for rendering if the predicted input is actually inputted.

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21. The system according to claim 17 and wherein each of the plurality of A/V processors comprises a decoder for decoding an encoded data stream.

22. The system according to claim 21 and wherein the encoded data stream comprises an encoded video stream.

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23. The system according to claim 22 and wherein the encoded video stream comprises an MPEG data stream and the decoder comprises an MPEG decoder.

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24. The system according to claim 23 and wherein the MPEG data stream comprises an MPEG-2 data stream and the MPEG decoder comprises an MPEG-2 decoder.

25. The system according to claim 23 and wherein the MPEG data stream comprises an MPEG-4 data stream and the MPEG decoder comprises an MPEG-4 decoder.

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26. The system according to claim 17 and also comprising a display unit operative to display at least one of the following: audio content; and video content.

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27. The system according to claim 26 and wherein the audio content comprises audio content outputted by the first A/V processor and the video content comprises video content outputted by the first A/V processor.

5 28. The system according to claim 27 and wherein the display unit also displays video content outputted by the second A/V processor as picture-in-picture (PIP) images.

29. The system according to claim 17 and also comprising a content  
10 storage unit operative to store at least one of the following: audio content; and video content.

30. The system according to claim 29 and wherein the audio content comprises audio content outputted by the second A/V processor and the video  
15 content comprises video content outputted by the second A/V processor.

31. The system according to claim 29 or claim 30 wherein the controller retrieves from the content storage unit for display at least one of the following: audio content; and video content.

20 32. The system according to claim 18 and wherein the user input comprises user channel changes.

33. The system according to claim 32 and wherein the user channel  
25 changes comprise a channel change in a first direction, and the predicted input is one of the following: a channel change in the first direction; and a channel change in a direction opposite to the first direction.

34. The system according to claim 33 and wherein the first direction  
30 comprises exactly one of the following: an upward direction; and a downward direction.

35. The system according to claim 32 and wherein the user channel changes comprise changes between exactly one of the following: virtual channels; and regular channels.

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36. The system according to claim 17 and wherein the controller determines at least one favorite channel based, at least in part, on the predicted input.

37. The system according to claim 17 and wherein the controller tracks a discrete object based, at least in part, on information concerning a path of the object.

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38. The system according to claim 37 and wherein the discrete object comprises a person.

39. The system according to claim 38 and wherein the person comprises one of the following: an actor; a player; and an audience member.

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40. The system according to claim 38 or claim 39 and wherein the controller tracks the person only upon receipt of an indication of at least one of the following: knowledge of the person; and permission of the person.

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41. The system according to claim 40 and also comprising a processor receiving said indication from at least one of the following: the person directly; a broadcast source; and a headend.

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42. The system according to claim 41 and wherein said indication is generated from an authorization list of parties with permission to track the person that is provided by the person, wherein the indication is generated at one of the following: the broadcast source; and the headend.

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43. The system according to claim 37 and wherein the controller tracks the discrete object by processing images received from a plurality of cameras that together provide a panoramic view of the object, wherein each camera of the plurality of cameras provides a viewing range which is a subset of the panoramic view.

44. The system according to claim 17 and wherein the controller comprises a special-effects generator for locally producing special effects.

10 45. A cellular telephone comprising the system according to claim 1.

46. A cellular telephone comprising the system according to claim 13.

47. A cellular telephone comprising the system according to claim 17.

15 48. Display apparatus for marking an object of interest on a display, the apparatus comprising:

an object determiner determining the object of interest based, at least in part, on user input;

20 a position information receiver receiving, from a source remote to the display apparatus, information defining a position of the object of interest within a displayed picture; and

an on-screen display (OSD) unit displaying a visible indicator at a display position on the display, the display position being based, at least in part, on  
25 the position of the object of interest.

49. Apparatus according to claim 48 and wherein the information is sent from a broadcast source or a headend.

30 50. Apparatus according to claim 48 or claim 49 and wherein the information is addressed to at least one particular viewer.

51. A set-top box (STB) comprising the apparatus of claim 48, the STB being associated with at least one particular viewer who is authorized to view the object of interest, and being operative to receive the information via a telephone message.

52. Apparatus according to claim 48 and wherein the object of interest is operatively associated with identification (ID).

10 53. Apparatus according to claim 48 and wherein the object of interest comprises a person.

54. Apparatus according to claim 53 and wherein the person comprises one of the following: an actor; a player; and an audience member.

15 55. Apparatus according to claim 53 or claim 54 and wherein said position information receiver receives said information from the source remote to the display apparatus only upon generation of an indication of at least one of the following: knowledge of the person; and permission of the person.

20 56. Apparatus according to claim 55 and wherein said indication is generated at the source from an authorization list of parties with permission to track the person that is provided by the person.

25 57. Apparatus according to claim 53 or claim 54 and wherein said position information receiver receives via said source a permission from the person to be tracked.

30 58. Apparatus according to claim 53 or claim 54 and wherein the position information receiver receives an indication of a permission to be tracked directly from the person.



59. An anticipatory processing method comprising:  
predicting an event determining program material to be displayed; and  
5 preparing a digital stream for use in response to said predicting.

60. The method according to claim 59 and also comprising:  
preparing A/V information associated with said program material for  
display in association with said digital stream in response to said predicting.

10 61. The method according to claim 59 or claim 60 and wherein said step  
of preparing the digital stream for use comprises preparing the digital stream for  
rendering.

15 62. The method according to claim 59 or claim 60 and wherein said step  
of preparing the digital stream for use comprises preparing the digital stream for  
storage.

20 63. The method according to claim 59 or claim 60 and wherein said step  
of preparing the digital stream for use comprises preparing the digital stream for  
distribution via a communication network.

25 64. The method according to claim 59 and also comprising using the  
digital stream if the event occurs.

65. The method according to claim 64 and wherein said step of using  
comprises at least one of the following: rendering the digital stream; storing the  
digital stream; and distributing the digital stream.

30 66. The method according to claim 65 and wherein said rendering  
comprises rendering the digital stream at a time after termination of preparation of  
the digital stream for use.

67. The method according to claim 66 and wherein the time after termination of preparation of the digital stream for use is immediately after termination of preparation of the digital stream for use.

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68. The method according to claim 60 and wherein said preparing A/V information for display in association with said digital stream comprises at least one of the following: preparing the A/V information for display over a channel associated with the digital stream; preparing the A/V information for display together with the digital stream in a PIP mode; and preparing the A/V information for display together with the digital stream in a side-by-side mode.

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69. An anticipatory processing method comprising:  
predicting an event determining program material to be displayed; and  
preparing an analog channel for use in response to said predicting.

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70. The method according to claim 69 and also comprising preparing A/V information associated with said program material for display over said analog channel in response to said predicting.

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71. The method according to claim 69 or claim 70 and also comprising using the analog channel if the event occurs.

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72. The method according to claim 71 and wherein said step of using comprises at least one of the following: rendering the analog channel over a television display; and recording the program material in a VCR.

73. An anticipatory processing method comprising:  
providing a plurality of A/V processors comprising at least a first A/V processor and a second A/V processor; and

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instructing the second A/V processor, upon the first A/V processor rendering or preparing for rendering a first digital stream, to prepare a second digital stream for rendering based, at least in part, on predicted input.

5 74. The method according to claim 73 and also comprising rendering the second digital stream if the predicted input is actually inputted.

75. A display method for marking an object of interest on a display, the method comprising:

10 determining the object of interest based, at least in part, on user input;  
receiving information defining a position of the object of interest within a displayed picture; and

displaying a visible indicator at a display position on the display, the display position being based, at least in part, on the position of the object of interest.

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